



SEQUENCE LISTING

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Sun, Wei

<120> T Cell Receptor CDR3 Sequence and Methods for
Detecting and Treating Rheumatoid Arthritis

<130> D6622

<140> US 10/612,468
<141> 2003-07-02

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in the V(16 family (BV16 gene) of T cell receptors
(TCR) in patients with rheumatoid arthritis (RA)

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(CDR3) in the V(14 family (BV14 gene) of TCR in
patients with RA

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TCR beta-chain BV16 in patients with RA

<400> 3
Ser Gln Ala Asp Gly Thr His
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beta-chain BV16 in patients with RA

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region V(14 of T cell receptors

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Ala Gly Pro Leu Glu Ala Gln Val Thr Gln Asn Pro Arg Tyr Leu
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Ile Thr Val Thr Gly Lys Lys Leu Thr Val Thr Cys Ser Gln Asn
      35      40      45
Met Asn His Glu Tyr Met Ser Trp Tyr Arg Gln Asp Pro Gly Leu
      50      55      60
Gly Leu Arg Gln Ile Tyr Tyr Ser Met Asn Val Glu Val Thr Asp
      65      70      75
Lys Gly Asp Val Pro Glu Gly Tyr Lys Val Ser Arg Lys Glu Lys
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Arg Asn Phe Pro Leu Ile Leu Glu Ser Pro Ser Pro Asn Gln Thr
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Ser Leu Tyr Phe Cys Ala Ser Ser
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<210>      7
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<220>
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Asp Asn Leu Tyr Trp Tyr Arg Arg Val Met Gly Lys Glu Ile Lys
      35      40      45
Phe Leu Leu His Phe Val Lys Glu Ser Lys Gln Asp Glu Ser Gly
      50      55      60
Met Pro Asn Asn Arg Phe Leu Ala Glu Arg Thr Gly Gly Thr Tyr
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Ser Thr Leu Lys Val Gln Pro Ala Glu Leu Glu Asp Ser Gly Val
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Tyr Phe Cys Ala Ser Ser
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 <210> 10
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PCR analysis

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PCR analysis

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PCR analysis

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<210> 14
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 PCR analysis

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| <210> | 19 | |
| <211> | 21 | |
| <212> | DNA | |
| <213> | Artificial Sequence | |
| <220> | | |
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| <223> | reverse primer specific for TCR BV6 used in real-time PCR analysis | |
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| cccccgctct gtgcgctgga t | | 21 |
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| <211> | 25 | |
| <212> | DNA | |
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| <223> | forward primer specific for TCR BV7 used in real-time PCR analysis | |
| <400> | 20 | |
| catgggaatg acaaataaga agtct | | 25 |
| <210> | 21 | |
| <211> | 21 | |
| <212> | DNA | |
| <213> | Artificial Sequence | |
| <220> | | |
| <221> | primer_bind | |
| <223> | reverse primer specific for TCR BV7 used in real-time PCR analysis | |
| <400> | 21 | |
| tggctgcagg gcgtgtaggt g | | 21 |
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| <211> | 21 | |
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| <213> | Artificial Sequence | |

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<210> 23
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<220>
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<210> 24
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<220>
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<210> 25
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PCR analysis

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<210> 31

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<210> 33

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 PCR analysis

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 PCR analysis

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| <223> | forward primer specific for TCR BV21 used in real-time PCR analysis | |
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| <211> | 21 | |
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| <220> | | |
| <221> | primer_bind | |
| <223> | reverse primer specific for TCR BV21 used in real-time PCR analysis | |
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| <213> | Artificial Sequence | |
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| <223> | forward primer specific for TCR BV22 used in real-time PCR analysis | |
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| <212> | DNA | |
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PCR analysis

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PCR analysis

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<210> 75
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 Phe Phe Gly Pro Gly
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<212> DNA
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 cgggccagga 60

<210> 77
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 <213> Homo sapiens

<220>
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 5 10 15
 Phe Phe Gly Pro Gly
 20

<210> 78
 <211> 60
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<220>
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 <223> CDR3 nucleic acid sequence of BV16 clonotype derived from ST specimen of RA patients

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 cgggccagga 60

<210> 79
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 <212> PRT
 <213> Homo sapiens

<220>
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 from ST specimen of RA patient

<400> 79
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 5 10 15
 Phe Phe Gly Pro Gly
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<210> 80
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<210> 81
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 from ST specimen of RA patient

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 Phe Phe Gly Pro Gly
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<210> 82
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 cgggccagga 60

 <210> 83
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 from ST specimen of RA patient

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 5 10 15
 Phe Phe Gly Pro Gly
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 from ST specimen of RA patients

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 cgggccagga 60

 <210> 85
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from ST specimen of RA patient

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Phe Phe Gly Pro Gly
20

<210> 86

<211> 60

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from ST specimen of RA patients

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cgggccaggc 60

<210> 87

<211> 20

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<213> Homo sapiens

<220>

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from ST specimen of RA patient

<400> 87

Tyr Phe Cys Ala Ser Pro Leu Gly Thr Ala Leu Ser Tyr Glu Gln
5 10 15

Phe Phe Gly Pro Gly
20

<210> 88

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<223> CDR3 nucleic acid sequence of BV16 clonotype derived
from ST specimen of RA patients

<400> 88
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cgggccgggc 60

<210> 89
<211> 20
<212> PRT
<213> Homo sapiens

<220>
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from ST specimen of RA patient

<400> 89
Tyr Phe Cys Ala Ser Ser Gln Ala Asp Gly Thr His Tyr Glu Gln
5 10 15
Phe Phe Gly Pro Gly
20

<210> 90
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
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from ST specimen of RA patients

<400> 90
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cgggccgggc 60

<210> 91
<211> 20
<212> PRT
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<220>
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from ST specimen of RA patient

<400> 91
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 Phe Phe Gly Pro Gly
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<210> 92
 <211> 60
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 from ST specimen of RA patients

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 cgggcccgggc 60

<210> 93
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<400> 93
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 Phe Phe Gly Pro Gly
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<210> 94
 <211> 60
 <12> DNA
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<220>
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<400> 94
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cgggccgggc 60

<210> 95
<211> 20
<212> PRT
<213> Homo sapiens

<220>
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<223> CDR3 amino acid sequence of BV16 clonotype derived
from ST specimen of RA patient

<400> 95
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5 10 15
Phe Phe Gly Pro Gly
20

<210> 96
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
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from ST specimen of RA patients

<400> 96
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cgggccgggc 60

<210> 97
<211> 20
<212> PRT
<213> Homo sapiens

<220>
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from ST specimen of RA patient

<400> 97
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5 10 15

Phe Phe Gly Pro Gly
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<210> 98
<211> 60
<212> DNA
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<220>
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from ST specimen of RA patients

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cgggcccgggc 60

<210> 99
<211> 18
<212> PRT
<213> Homo sapiens

<220>
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<223> CDR3 amino acid sequence of BV16 clonotype derived
from ST specimen of RA patient

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5 10 15
Gly Gln Gly

<210> 100
<211> 54
<212> DNA
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<220>
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from ST specimen of RA patients

<400> 100
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<210> 101
<211> 18

<212> PRT
 <213> Homo sapiens

 <220>
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 from ST specimen of RA patient

 <400> 101
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 5 10 15
 Gly Gln Gly

 <210> 102
 <211> 54
 <212> DNA
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 <220>
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 <223> CDR3 nucleic acid sequence of BV16 clonotype derived
 from ST specimen of RA patients

 <400> 102
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 <210> 103
 <211> 18
 <212> PRT
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 <220>
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 from ST specimen of RA patient

 <400> 103
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 5 10 15
 Gly Gln Gly

 <210> 104
 <211> 54
 <212> DNA
 <213> Artificial Sequence

<223> CDR3 nucleic acid sequence of BV16 clonotype derived from ST specimen of RA patients

<400> 104

tatttctgtg ccagcagggc aagcaggtac actgaagctt tctttggaca aggc 54

<210> **105**

<211> 18

<212> PRT

<213> Homo sapiens

<220>

<221> Domain

<223> CDR3 amino acid sequence of BV16 clonotype derived from ST specimen of RA patient

<400> 105

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Gly Gln Gly

<210> 106

<211> **54**

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<223> CDR3 nucleic acid sequence of BV16 clonotype derived from ST specimen of RA patients

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tattttctgtg ccagcagtac aggggtgaac actgaagctt tctttggaca aggc 54

<210> 107

<211> 18

<212> PRT

<213> Homo sapiens

 $\langle 220 \rangle$

<221> Domain

<223> CDR3 amino acid sequence of BV16 clonotype derived from ST specimen of RA patient

<210> 111
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<220>
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<223> CDR3 amino acid sequence of BV16 clonotype derived
from ST specimen of RA patient

<400> 111
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5 10 15
Gly Gln Gly

<210> 112
<211> 54
<212> DNA
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from ST specimen of RA patients

<400> 112
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<210> 113
<211> 20
<212> PRT
<213> Homo sapiens

<220>
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<223> CDR3 amino acid sequence of BV14 clonotype derived
from ST specimen of RA patients

<400> 113
Tyr Phe Cys Ala Ser Ser Pro Thr Arg Asp Arg Gly Asn Glu Gln
5 10 15
Phe Phe Gly Pro Gly
20

<210> 114
<211> 63
<212> DNA

<213> Artificial Sequence
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 <223> CDR3 nucleic acid sequence of BV14 clonotype derived
 from ST specimen of RA patients
 <400> 114
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 cttcgggcca gga 63
 <210> 115
 <211> 22
 <212> PRT
 <213> Homo sapiens
 <220>
 <221> Domain
 <223> CDR3 amino acid sequence of BV14 clonotype derived
 from ST specimen of RA patients
 <400> 115
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 5 10 15
 Glu Gln Phe Phe Gly Pro Gly
 20
 <210> 116
 <211> 63
 <212> DNA
 <213> Artificial Sequence
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 <223> CDR3 nucleic acid sequence of BV14 clonotype derived
 from ST specimen of RA patients
 <400> 116
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 cttcgggcca gga 63
 <210> 117
 <211> 20
 <212> PRT
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<220>
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 <223> CDR3 amino acid sequence of BV14 clonotype derived
 from ST specimen of RA patients

<400> 117
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 5 10 15
 Phe Phe Gly Pro Gly
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<210> 118
 <211> 63
 <212> DNA
 <213> Artificial Sequence

<220>
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 from ST specimen of RA patients

<400> 118
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 cttcgggccca gga 63

<210> 119
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<220>
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 from ST specimen of RA patients

<400> 119
 Tyr Phe Cys Ala Ser Ser Ser Ser Ser Pro Thr Ser Tyr Asn Glu
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 Gln Phe Phe Gly Pro Gly
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<210> 120
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
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 from ST specimen of RA patients

<400> 120
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 cgggccagga
 60

<210> 121
 <211> 20
 <212> PRT
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<220>
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 <223> CDR3 amino acid sequence of BV14 clonotype derived
 from ST specimen of RA patients

<400> 121
 Tyr Phe Cys Ala Ser Ser Pro Arg Glu Gly Leu Leu Asn Glu Gln
 5 10 15
 Phe Phe Gly Pro Gly
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<210> 122
 <211> 63
 <212> DNA
 <213> Artificial Sequence

<220>
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 from ST specimen of RA patients

<400> 122
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 cttcggggcca gga 63

<210> 123
 <211> 21
 <212> PRT
 <213> Homo sapiens

<223> CDR3 nucleic acid sequence of BV14 clonotype derived
from ST specimen of RA patients

<400> 126
tactttctgtg ccagcagttt aaggacacgc ttctacgagc agttcttcgg gccagga 57

<210> 127
<211> 20
<212> PRT
<213> Homo sapiens

<220>
<221> Domain
<223> CDR3 amino acid sequence of BV14 clonotype derived
from ST specimen of RA patients

<400> 127
Tyr Phe Cys Ala Ser Ser Leu Thr Ser Gly Arg Gln Tyr Glu Gln
5 10 15
Tyr Phe Gly Pro Gly
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<210> 128
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
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from ST specimen of RA patients

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cgggccagga 60

<210> 129
<211> 20
<212> PRT
<213> Homo sapiens

<220>
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from ST specimen of RA patients

<400> 132
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cgggccagga 60

<210> 133
<211> 20
<212> PRT
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<220>
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from ST specimen of RA patients

<400> 133
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Tyr Phe Gly Pro Gly
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<210> 134
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
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from ST specimen of RA patients

<400> 134
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cgggccagga 60

<210> 135
<211> 20
<212> PRT
<213> Homo sapiens

<220>
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<223> CDR3 amino acid sequence of BV14 clonotype derived
from ST specimen of RA patients

<400> 135
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5 10 15

Tyr Phe Gly Pro Gly
20

<210> 136
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<221> CDS
<223> CDR3 nucleic acid sequence of BV14 clonotype derived
from ST specimen of RA patients

<400> 136
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cgggccagga 60

<210> 137
<211> 19
<212> PRT
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<220>
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<223> CDR3 amino acid sequence of BV14 clonotype derived
from ST specimen of RA patients

<400> 137
Tyr Phe Cys Ala Ser Ser Arg Asp Gly Val Ser Tyr Glu Gln Tyr
5 10 15
Phe Gly Pro Gly

<210> 138
<211> 57
<212> DNA
<213> Artificial Sequence

<220>
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from ST specimen of RA patients

<400> 138
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57

<210> 139
<211> 19
<212> PRT
<213> Homo sapiens

<220>
<221> Domain
<223> CDR3 amino acid sequence of BV14 clonotype derived
from ST specimen of RA patients

<400> 139
Tyr Phe Cys Ala Ser Ser Leu Ser Ser Thr Gly Arg Glu Gln Tyr
5 10 15
Phe Gly Pro Gly

<210> 140
<211> 57
<21> DNA
<213> Artificial Sequence

<220>
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from ST specimen of RA patients

<400> 140
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57

<210> 141
<211> 20
<212> PRT
<213> Homo sapiens

<220>
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<223> CDR3 amino acid sequence of BV14 clonotype derived
from ST specimen of RA patients

<400> 141
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5 10 15
Tyr Phe Gly Pro Gly
20

<210> 142
<211> 60

<212> DNA
 <213> Artificial Sequence

 <220>
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 from ST specimen of RA patients

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 cgggccagga 60

 <210> 143
 <211> 20
 <212> PRT
 <213> Homo sapiens

 <220>
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 <223> CDR3 amino acid sequence of BV14 clonotype derived
 from ST specimen of RA patients

 <400> 143
 Tyr Phe Cys Ala Ser Ser Pro Ser Gly Gln Gly Ser Tyr Glu Gln
 5 10 15
 Tyr Phe Gly Pro Gly
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 <210> 144
 <211> 60
 <212> DNA
 <213> Artificial Sequence

 <220>
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 <223> CDR3 nucleic acid sequence of BV14 clonotype derived
 from ST specimen of RA patients

 <400> 144
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 cgggccagga 60

 <210> 145
 <211> 20
 <212> PRT
 <213> Homo sapiens

<220>
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 from ST specimen of RA patients

<400> 145
 Tyr Phe Cys Ala Ser Ser Phe Gly Thr Val Leu Ser Tyr Glu Gln
 5 10 15
 Tyr Phe Gly Pro Gly
 20

<210> 146
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
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 from ST specimen of RA patients

<400> 146
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 cgggccagga 60

<210> 147
 <211> 20
 <212> PRT
 <213> Homo sapiens

<220>
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 from ST specimen of RA patients

<400> 147
 Tyr Phe Cys Ala Ser Ser Pro Arg Leu Ala Gly Asp Lys Glu Gln
 5 10 15
 Tyr Phe Gly Pro Gly
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<210> 148
 <211> 61
 <212> DNA
 <213> Artificial Sequence

<220>
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 <223> CDR3 nucleic acid sequence of BV14 clonotype derived
 from ST specimen of RA patients

<400> 148
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 tcgggccggg c 61

<210> 149
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 <212> PRT
 <213> Homo sapiens

<220>
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 <223> CDR3 amino acid sequence of BV14 clonotype derived
 from ST specimen of RA patients

<400> 149
 Tyr Phe Cys Ala Ser Ser Leu Ser Ala Arg Thr Thr Tyr Glu Gln
 5 10 15
 Tyr Phe Gly Pro Gly
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<210> 150
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
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 from ST specimen of RA patients

<400> 150
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 cgggccagga 60

<210> 151
 <211> 19
 <212> PRT
 <213> Homo sapiens

<220>
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 <223> CDR3 amino acid sequence of BV14 clonotype derived

from ST specimen of RA patients

<400> 151
Tyr Phe Cys Ala Ser Ser Leu Ile Gly Gly Asn Glu Lys Leu Phe
5 10 15
Leu Gly Ser Gly

<210> 152
<211> 57
<212> DNA
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<220>
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<223> CDR3 nucleic acid sequence of BV14 clonotype derived
from ST specimen of RA patients

<400> 152
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<210> 153
<211> 18
<212> PRT
<213> Homo sapiens

<220>
<221> Domain
<223> CDR3 amino acid sequence of BV14 clonotype derived
from ST specimen of RA patients

<400> 153
Tyr Phe Cys Ala Ser Ser Leu Ser Gln Glu Thr Glu Ala Phe Phe
5 10 15
Gly Gln Gly

<210> 154
<211> 53
<212> DNA
<213> Artificial Sequence

<220>
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<223> CDR3 nucleic acid sequence of BV14 clonotype derived
from ST specimen of RA patients

<400> 154
tactttctgtg ccagagttta tcccaggaaa ctgaagcttt ctttggacaa ggc 53

<210> 155
 <211> 19
 <212> PRT
 <213> Homo sapiens

 <220>
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 from ST specimen of RA patients

<400> 155
 Tyr Phe Cys Ala Ser Arg Ala Gly Thr Gly Phe Glu Lys Leu Phe
 5 10 15
 Phe Gly Ser Gly

<210> 156
 <211> 54
 <212> DNA
 <213> Artificial Sequence

 <220>
 <221> CDS
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 from ST specimen of RA patients

<400> 156
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<210> 157
 <211> 18
 <212> PRT
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<220>
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 from ST specimen of RA patients

<400> 157
 Tyr Phe Cys Ala Ser Ser Leu Ser Gln Asn Thr Glu Ala Phe Phe
 5 10 15
 Gly Gln Gly

<210> 158
 <211> 54
 <212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<223> CDR3 nucleic acid sequence of BV14 clonotype derived from ST specimen of RA patients

<400> 158

tactttctgtg ccagcagtct gtcacagaac actgaagctt tctttggaca aggc 54

<210> 159

<211> 18

<212> PRT

<213> Homo sapiens

<220>

<221> Domain

<223> CDR3 amino acid sequence of BV14 clonotype derived from ST specimen of RA patients

<400> 159

Tyr Phe Cys Ala Ser Ser Pro Arg Val Asn Thr Glu Ala Phe Phe
5 10 15

Gly Gln Gly

<210> 160

<211> 53

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<223> CDR3 nucleic acid sequence of BV14 clonotype derived from ST specimen of RA patients

<400> 160

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<210> 161

<211> 18

<212> PRT

<213> Homo sapiens

<220>

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<223> CDR3 amino acid sequence of BV14 clonotype derived from ST specimen of RA patients

<220>

<221> CDS

<223> CDR3 nucleic acid sequence of BV14 clonotype derived
from ST specimen of RA patients

<400> 168

tacttctgtg ccagcagttc cctcgctact gctgaagctt tctttggaca aggc 54